



TECHNOLOGY

NASA Glenn's unique expertise in the characterization of novel materials and processes allowed Energystics Technologies to expand its product offerings to include photovoltaic coatings, novel nanomaterials, semiconductors, and barrier coatings.

COMMERCIAL APPLICATION

Energystics Technologies, Ltd. (ETL) of Toledo, Ohio has developed a novel and enabling technology for realizing solutions to process engineering challenges. The ETL EnergyBeam is a refined, plasma-directed electron-beam capable of barely scorching paper to vaporizing tungsten using about 450 Watts of electricity (800 Watts less than a household hair dryer). ETL sought GMCI's assistance in acquiring state-of-the-art analysis of their plasma-directed electron-beam and the materials produced through various processes based on the ETL technology. The NASA Glenn Garrett Morgan Commercialization Initiative (GMCI) identified researchers at Glenn to perform SEM (scanning electron microscopy) and TEM (transmission electron microscopy) analysis on several material samples ETL developed and to characterize the ETL plasma-directed electron-beam using optical diagnostic techniques. This analysis led to nearly \$500,000 in new capital investment and two new commercial development partners.



ETL EnergyBeam process operability demonstration under water.

SOCIAL/ECONOMIC BENEFIT

Energystics Technologies' long range goal is to become a technology solution provider. Armed with an intimate understanding of how their plasma-directed electron-beam works, the company is moving forward with creating new applications. Examples that utilize the technology's energy and cost efficiency include water purification, diesel engine exhaust treatments, and industrial drying processes.

NASA APPLICATIONS

Advanced water recovery is arguably the single largest enabling technology for extended manned space exploration. The ETL plasma-directed electron-beam process provides an energy-efficient and cost-effective water recovery and reuse solution offering both water purification and sterilization.

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